

RF_ANT

PRX_B1_RTR_M
PRX_B1_RTR_P
PRX_B4_RTR_M
PRX_B4_RTR_P
PRX_B2_RTR_M
PRX_B2_RTR_PPRX_B5_RX_LB_RTR_M
PRX_B5_RX_LB_RTR_P
PRX_B17_RTR_M
PRX_B17_RTR_PRTR_ADDET
DRX_B1_B4_RTR_M
DRX_B1_B4_RTR_P
DRX_B2_RTR_M
DRX_B2_RTR_P
DRX_B5_RTR_M
DRX_B5_RTR_P
DRX_B17_RTR_M
DRX_B17_RTR_PRX_GSM_DCS_PCS_RTR_M
RX_GSM_DCS_PCS_RTR_P
RX_GPS_RTRTX_B1_RTR
TX_B2_RTR
TX_B4_RTR
TX_B5_RTR
TX_B17_RTR
TX_HB_GSM_RTR
TX_LB_GSM_RTRPA_ON_B2
PA_ON_B4
PA_ON_B17
PA_ON_MMPA_MODE
PA_ON_MMPA_HB
PA_ON_MMPA_LB
GPS_ON
PA_LB0
PA_R1
APT_VCON
APT_EN
ANT_SW_SEL(3-0)
DRX_MODE_SEL(2-0)
PRX_LB_SEL
PA_TEMP0WIFI_HB
WIFI_LBDNM_CLK
DNM_CS
DNM_DATAVR_9921_LVS1
VR_9921_S4
VSY5
VBAT_PROTECTED
VR_9921_L14
VR_9921_L22
GND

RTRB6600

PRX_B1_RTR_M
PRX_B1_RTR_P
PRX_B4_RTR_M
PRX_B4_RTR_P
PRX_B2_RTR_M
PRX_B2_RTR_PPRX_B5_RX_LB_RTR_M
PRX_B5_RX_LB_RTR_P
PRX_B17_RTR_M
PRX_B17_RTR_PRTR_ADDET
DRX_B1_B4_RTR_M
DRX_B1_B4_RTR_P
DRX_B2_RTR_M
DRX_B2_RTR_P
DRX_B5_RTR_M
DRX_B5_RTR_P
DRX_B17_RTR_M
DRX_B17_RTR_PRX_GSM_DCS_PCS_RTR_M
RX_GSM_DCS_PCS_RTR_P
RX_GPS_RTRTX_B1_RTR
TX_B2_RTR
TX_B4_RTR
TX_B5_RTR
TX_B17_RTR
TX_HB_GSM_RTR
TX_LB_GSM_RTRVR_9921_L4
VR_9921_LVS7
VR_9921_S2
VR_9921_S8
GND
9-12

RTR_X0_A0

RTR_DRVBB_I_M
RTR_DRVBB_I_P
RTR_DRVBB_Q_M
RTR_DRVBB_Q_P
RTR_GNSSBB_I_M
RTR_GNSSBB_I_P
RTR_GNSSBB_Q_M
RTR_GNSSBB_Q_P
RTR_PRXBB_I_M
RTR_PRXBB_I_P
RTR_PRXBB_Q_M
RTR_PRXBB_Q_P
RTR_TXBB_I_M
RTR_TXBB_I_P
RTR_TXBB_Q_M
RTR_TXBB_Q_P
RTR_DAC_IREFRTR_RF_ON
RTR_RX_ON
RTR_SSB11
RTR_SSB12GSM_PH_CLK
GSM_PH_SYNC
GSM_PH_DATA0
GSM_PH_DATA1
GSM_PH_DATA2

RTR_X0_A0

RTR_DRVBB_I_M
RTR_DRVBB_I_P
RTR_DRVBB_Q_M
RTR_DRVBB_Q_P
RTR_GNSSBB_I_M
RTR_GNSSBB_I_P
RTR_GNSSBB_Q_M
RTR_GNSSBB_Q_P
RTR_PRXBB_I_M
RTR_PRXBB_I_P
RTR_PRXBB_Q_M
RTR_PRXBB_Q_P
RTR_TXBB_I_M
RTR_TXBB_I_P
RTR_TXBB_Q_M
RTR_TXBB_Q_P
RTR_DAC_IREFRTR_RF_ON
RTR_RX_ON
RTR_SSB11
RTR_SSB12GSM_PH_CLK
GSM_PH_SYNC
GSM_PH_DATA0
GSM_PH_DATA1
GSM_PH_DATA2WLAN_INT_N
WLAN_EN
BT_EN

WIFI_CLK_REQ

SLEEP_CLK_PERIPHERAL
V_NFC2SIM
VR_9921_L15
VSY5
VR_9921_LVS4
VR_9921_S4
VBAT_PROTECTED
GND

WIRELESS_IO

WIFI_HB
WIFI_LBWLAN_INT_N
WLAN_EN
BT_EN

WIFI_CLK_REQ

SLEEP_CLK_PERIPHERAL

V_NFC2SIM
VR_9921_L15
VSY5
VR_9921_LVS4
VR_9921_S4
VBAT_PROTECTED
GND

13-14

WLAN_SD_CLK
WLAN_SD_CMD
WLAN_SD_D1(3-0)UART_MSM_RFR_BT_CTS
UART_MSM_CTS_BT_RFR
UART_MSM_TX_BT_TX
UART_MSM_TX_BT_RX
POM_CLK
POM_SYNC
POM_MSM_DOUT_BT_DIN
POM_MSM_DIN_BT_DOUTFM_I2S_FSYNC
FM_I2S_CLK
FM_I2S_D0
FM_I2S_D1I2C_SOL_MISC
I2C_SDA_MISC
NFC_INT
NFC_SWP
NFC_RST

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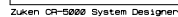
HIERARCHICAL BLOCK
MAINDRAWN BY
Mitul KapadiaRND CHECK
Ottawa CDMA teamMFG CHECK
mfgchEDITED BY
mkapadia

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295 PHILIP ST.
WATERLOO, ONTARIO CANADA
PHONE (519) 888-7465 FAX (519) 888-6986TITLE
R070
uses PCB-44899-010SIZE
DRAWING No. SCH-44900-010

REV 2 SHEET 1 of 34

RF SECTIONS ARE DIFFERENT IN THE SPRINT, VERIZON AND AT&T VERSIONS



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MAIN ANTENNA (BOTTOM)

DRX_GPS ANTENNA (TOP)

GPS FRONTEND

Coax Guides

DIVERSITY

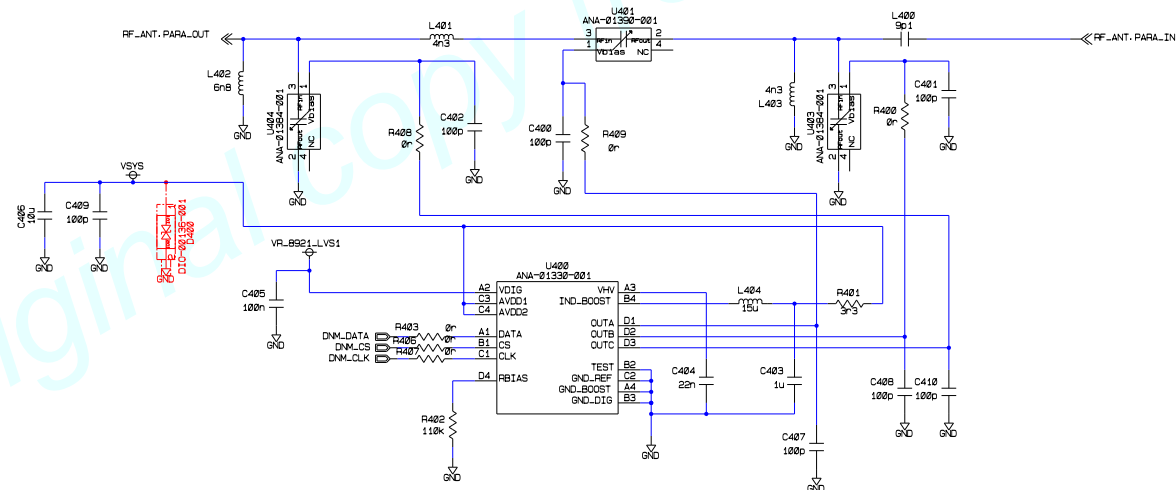
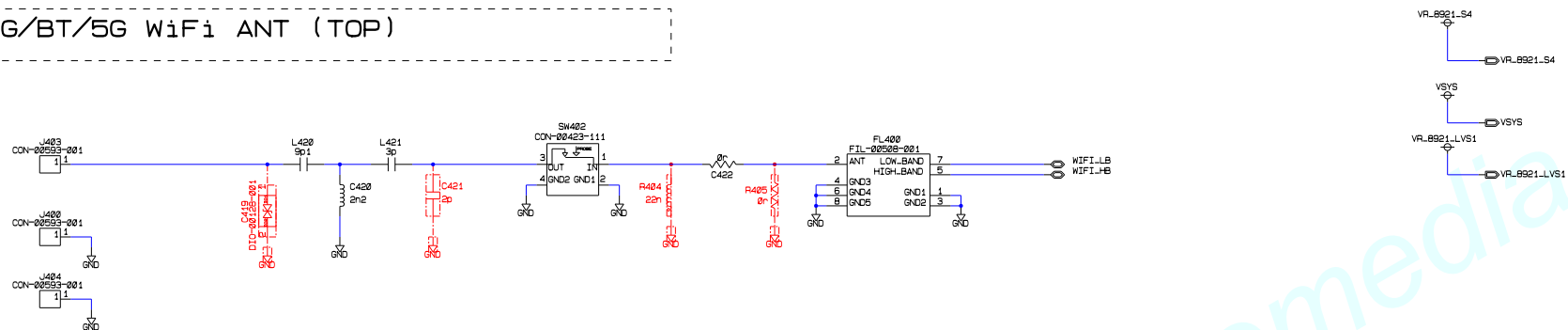
DRX ANTENNA (TOP)

NOTE:

1. UMTS B1 DRX
2. UMTS/LTE B4 DRX
3. UMTS/LTE B2 DRX
4. UMTS/LTE B5 DRX
5. LTE B17 DRX

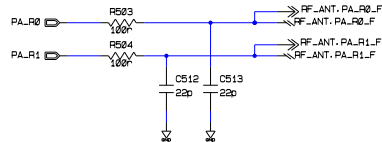
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2.4G/BT/5G WiFi ANT (TOP)



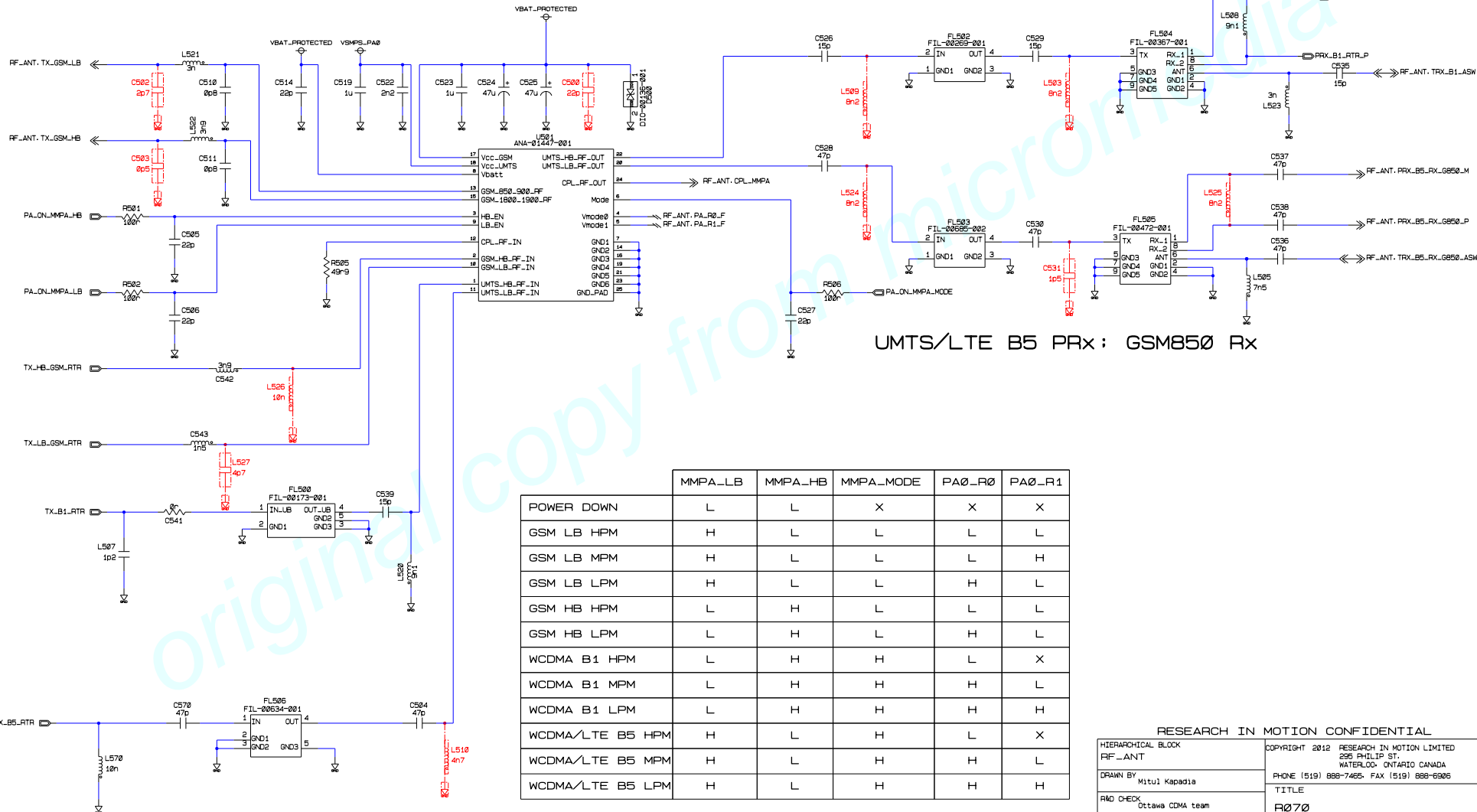
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UMTS B1, B5, Quad Band GSM MMPA

UMTS B1 Tx



UMTS/LTE B5 PRx : GSM850 Rx

	MMPA_LB	MMPA_HB	MMPA_MODE	PA0_R0	PA0_R1
POWER DOWN	L	L	X	X	X
GSM LB HPM	H	L	L	L	L
GSM LB MPM	H	L	L	L	H
GSM LB LPM	H	L	L	H	L
GSM HB HPM	L	H	L	L	L
GSM HB LPM	L	H	L	H	L
WCDMA B1 HPM	L	H	H	L	X
WCDMA B1 MPM	L	H	H	H	L
WCDMA B1 LPM	L	H	H	H	H
WCDMA/LTE B5 HPM	H	L	H	L	X
WCDMA/LTE B5 MPM	H	L	H	H	L
WCDMA/LTE B5 LPM	H	L	H	H	H

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MFG CHECK	emfich	R070
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		SHEET 5 of 34

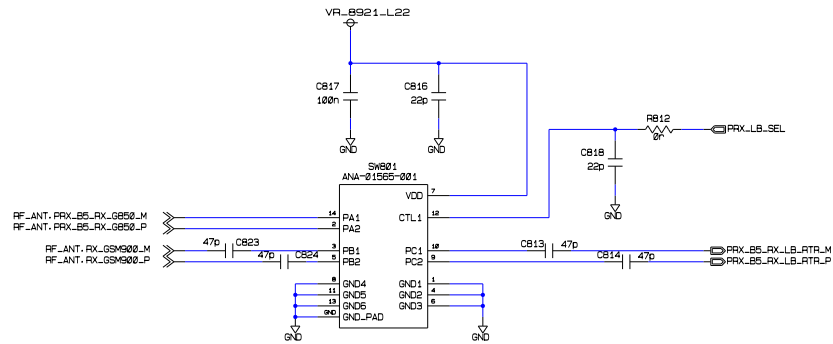
The schematic diagram illustrates the RF front end architecture, consisting of five distinct stages: B2, B1, B5, GSM1900, and GSM1800. Each stage is designed to interface an antenna with a specific SAW filter and balun.

- Stage B2:** The RF_ANT.DRX.LUMTS.B2 antenna is connected to a matching network (L782, 15p) and a SAW filter (FIL-00462-001, FL782). The filter's IN and OUT1 pins are connected to the balun (BAL-1, BAL-2) and GND. The balun's OUT1 and OUT2 pins are connected to the DRX.B2.RTR.M and DRX.B2.RTR.P ports.
- Stage B1:** The RF_ANT.DRX.LUMTS.B1.B4 antenna is connected to a matching network (L703, 15p) and a SAW filter (FIL-00434-001, FL703). The filter's IN and OUT1 pins are connected to the balun (BAL-1, BAL-2) and GND. The balun's OUT1 and OUT2 pins are connected to the DRX.B1.B4.RTR.M and DRX.B1.B4.RTR.P ports.
- Stage B5:** The RF_ANT.DRX.LUMTS.B5 antenna is connected to a matching network (L785, 47p) and a SAW filter (FIL-00537-001, FL787). The filter's IN.LB and OUT.B1 pins are connected to the balun (BAL-1, BAL-2) and GND. The balun's OUT1 and OUT2 pins are connected to the DRX.B5.RTR.M and DRX.B5.RTR.P ports.
- Stage GSM1900:** The RF_ANT.RX.GSM.L1900 antenna is connected to a matching network (C726, 2p) and a SAW filter (FIL-00449-001, FL785). The filter's UNB and BAL.1 pins are connected to the balun (BAL-1, BAL-2) and GND. The balun's OUT1 and OUT2 pins are connected to the RF_ANT.RX.GSM.B200.M and RF_ANT.RX.GSM.B200.P ports.
- Stage GSM1800:** The RF_ANT.RX.GSM.L1800 antenna is connected to a matching network (C731, 15p) and a SAW filter (FIL-00350-001, FL784). The filter's UNBAL-1 and UNBAL-2 pins are connected to the balun (BAL-1, BAL-2) and GND. The balun's OUT1 and OUT2 pins are connected to the RX.GSM.DCS.PCS.RTR.M and RX.GSM.DCS.PCS.RTR.P ports.

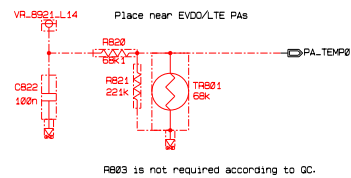
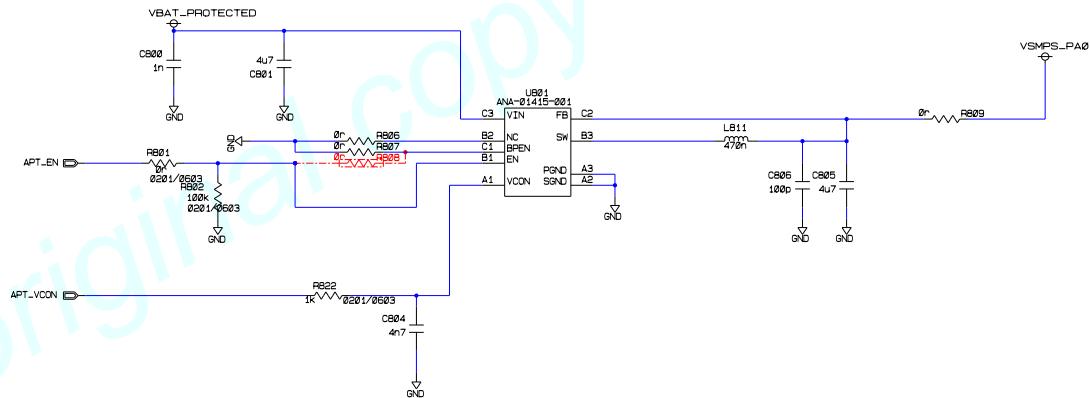
The diagram also shows the internal connections of the SAW filters and baluns, including ground connections and pin numbers. The overall layout is designed to ensure optimal signal integrity and performance across the specified frequency bands.

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MFG CHECK mrgcn		USING PCB-44899-010	
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UMTS/LTE B5 PRx: G850/900 Rx

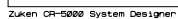


SMPS FOR ALL PA'S



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Ottawa CDMA team	R070
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mfqch	
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mkapadia	DRAWING No. SCH-44900-010
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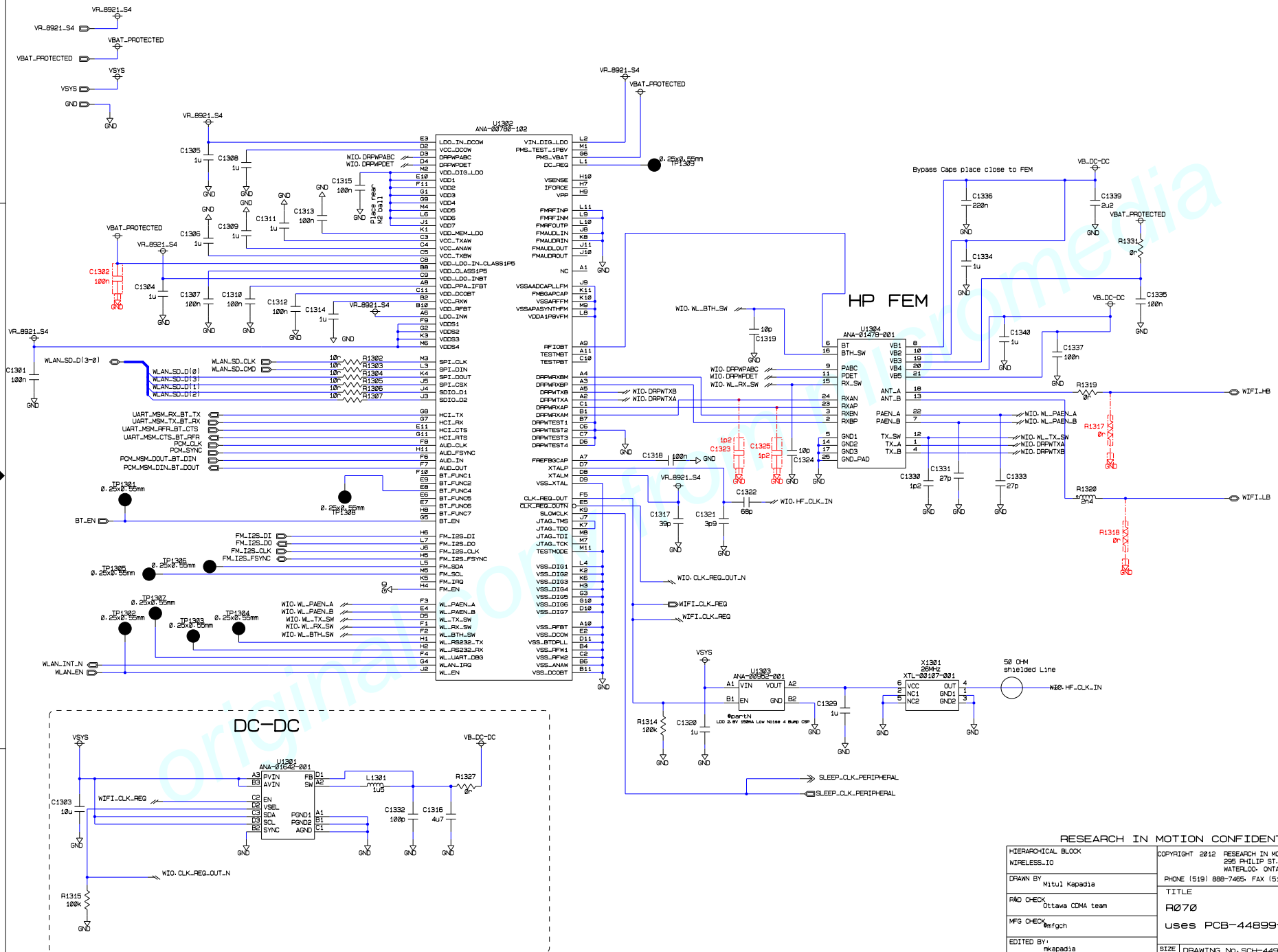
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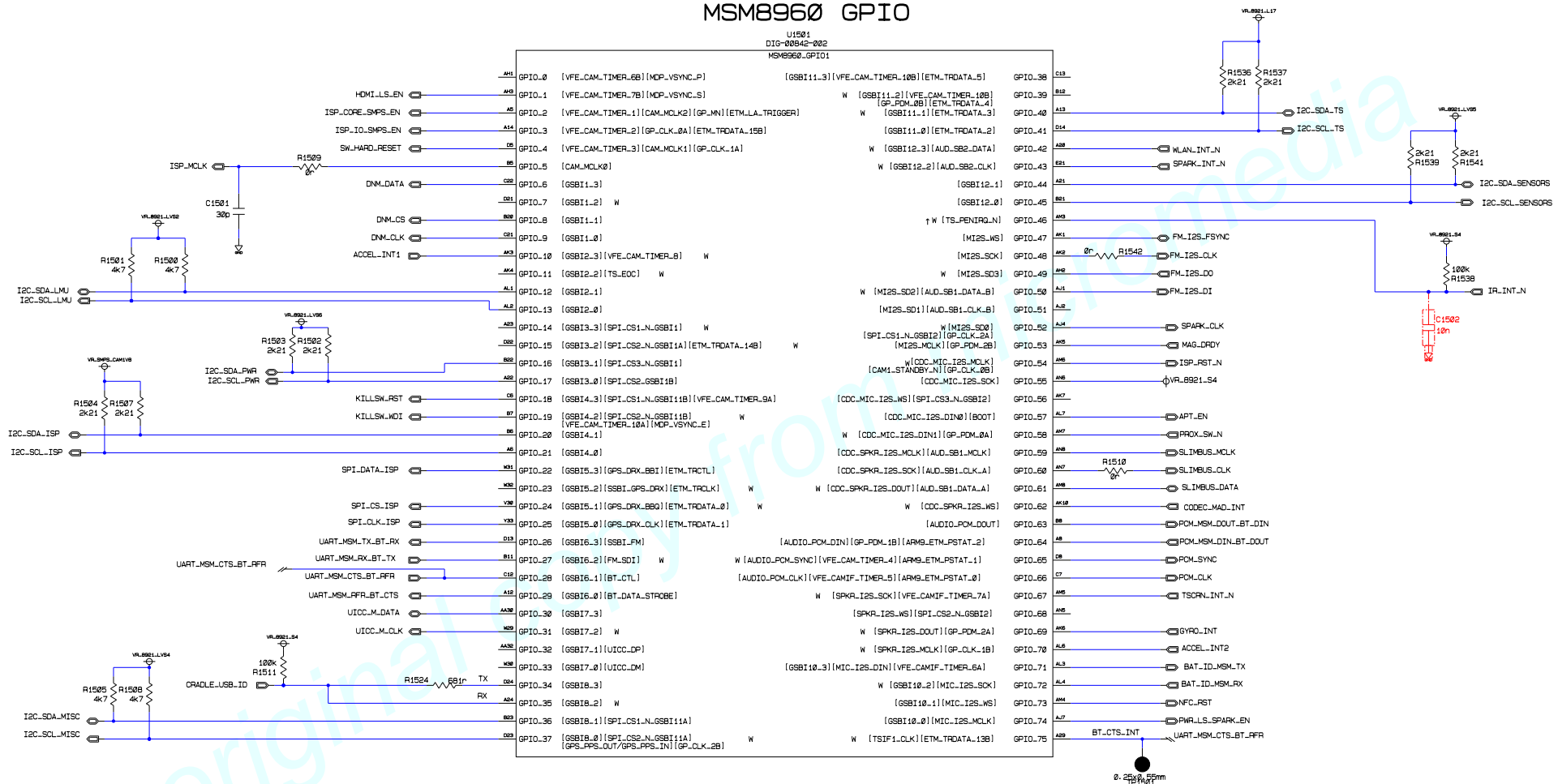
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MFG CHECK	enrich	R070
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		DRAWING No. SCH-44900-010
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MSM8960 GPIO



Ø. 25xØ. 55mm
TP1501

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PROCESSOR_MSM	
DRAWN BY Mitu Kapadia	
RWD CHECK Ottawa CDMA team	
MFG CHECK Imfgcn	
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LAST EDIT: 2013/01/08 09:02:43	SIZE C DRAWING NO. SCH-44900-010 REV 2 SHEET 15 of 34

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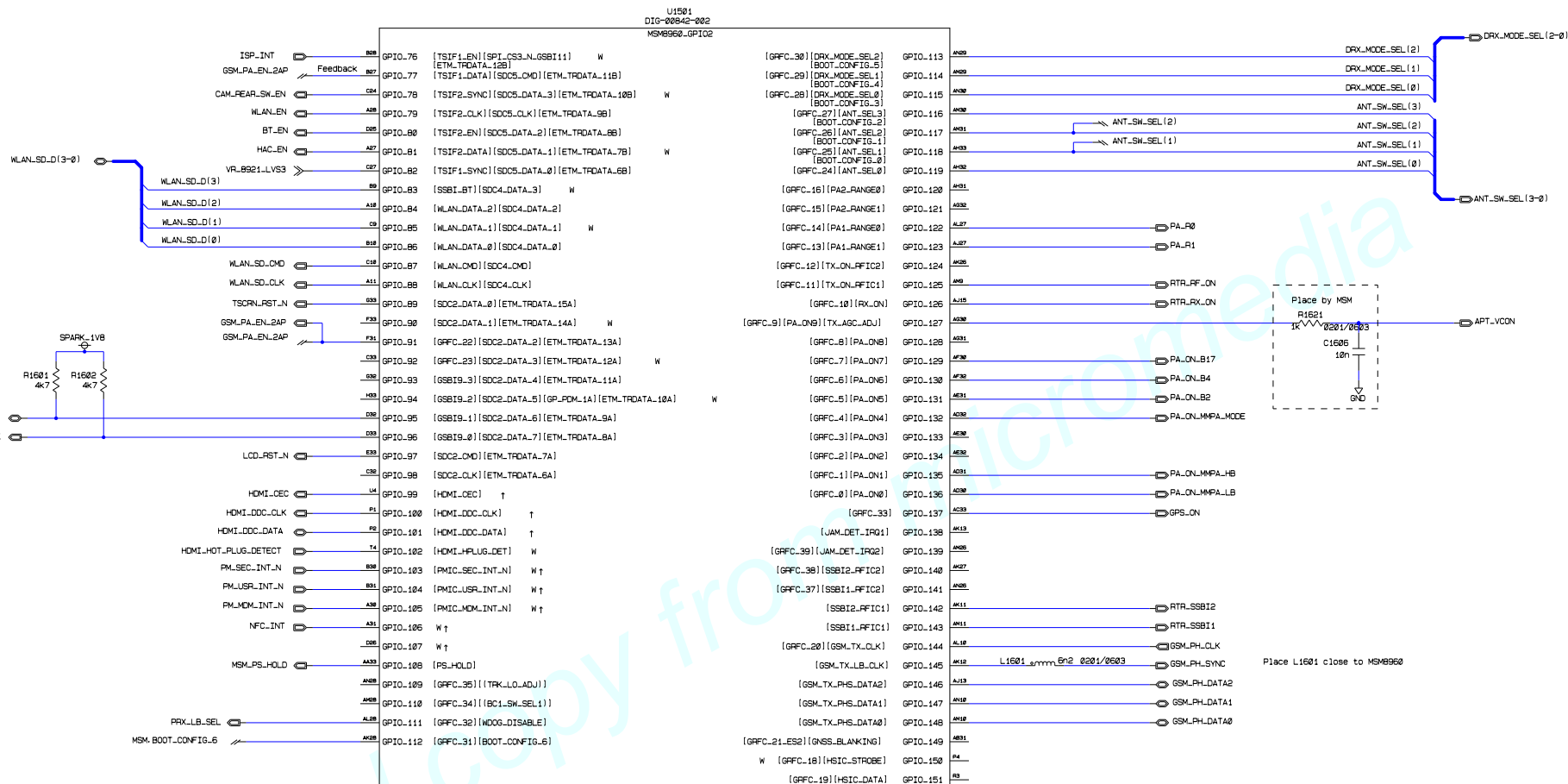
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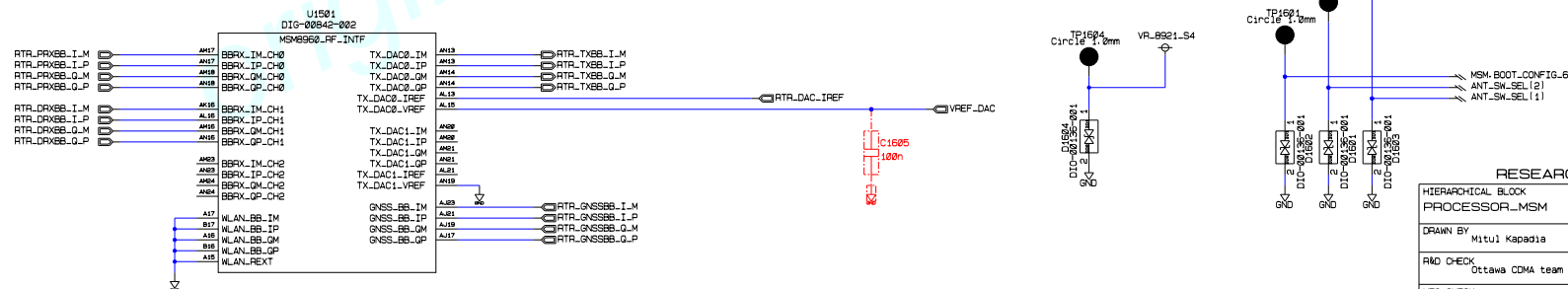
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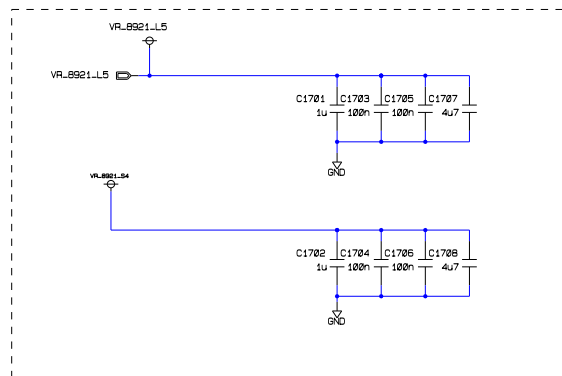


MSM8960 RF INTERFACE

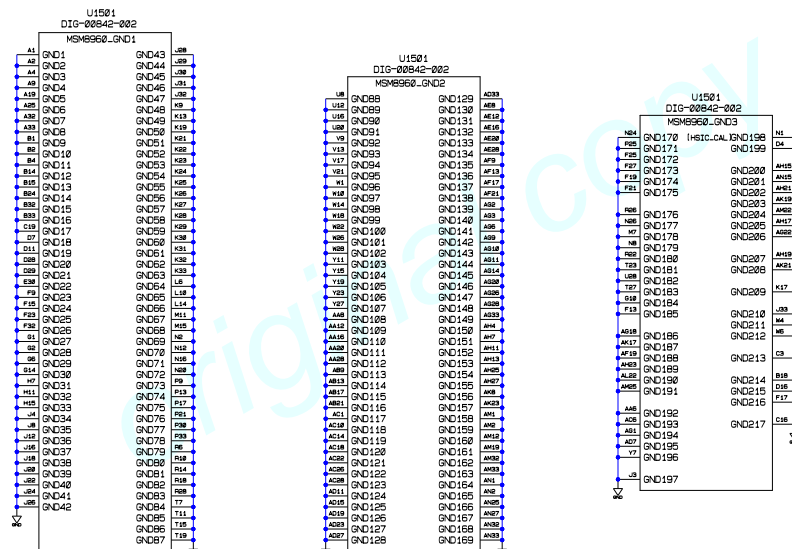


MSM8960 MEMORY INTERFACE

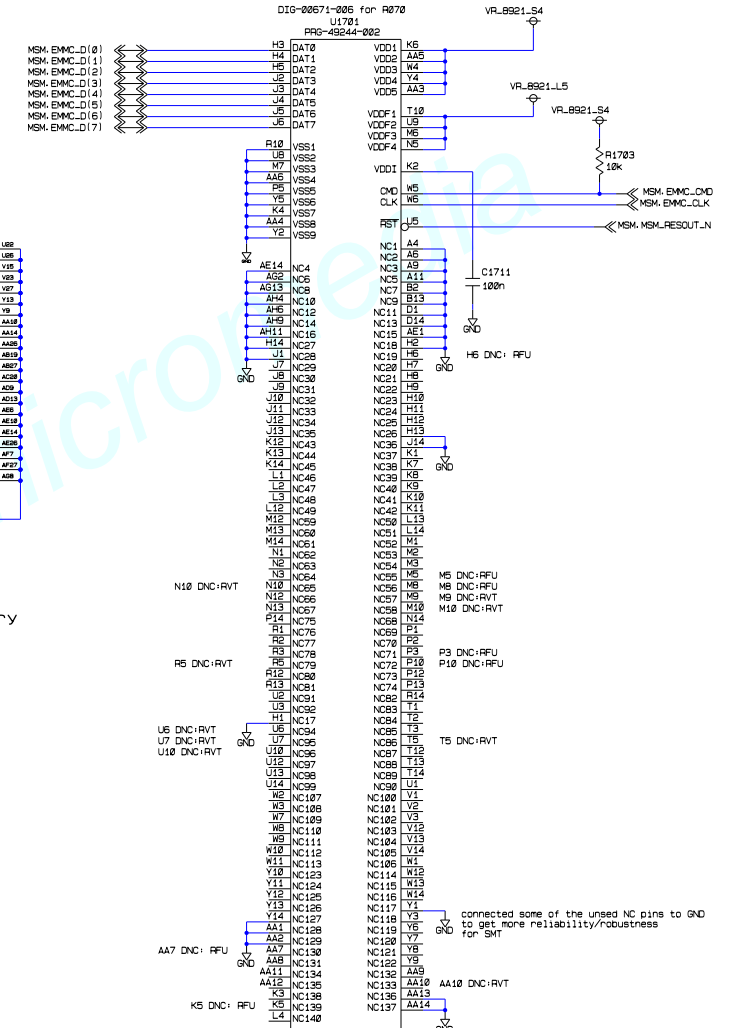
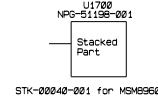
eMMC Power



MSM8960 GND

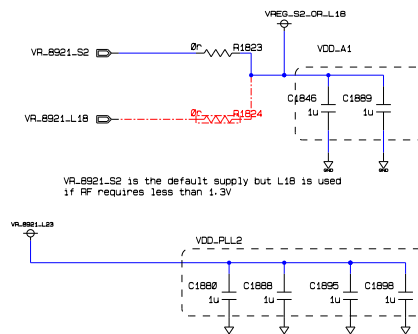
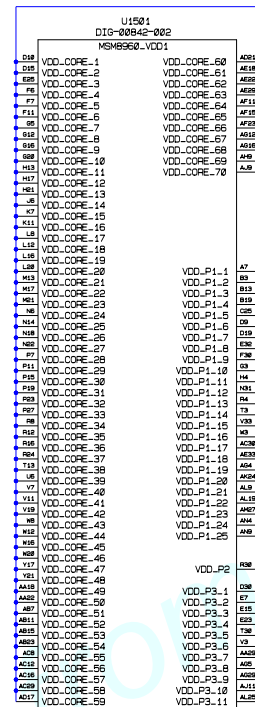


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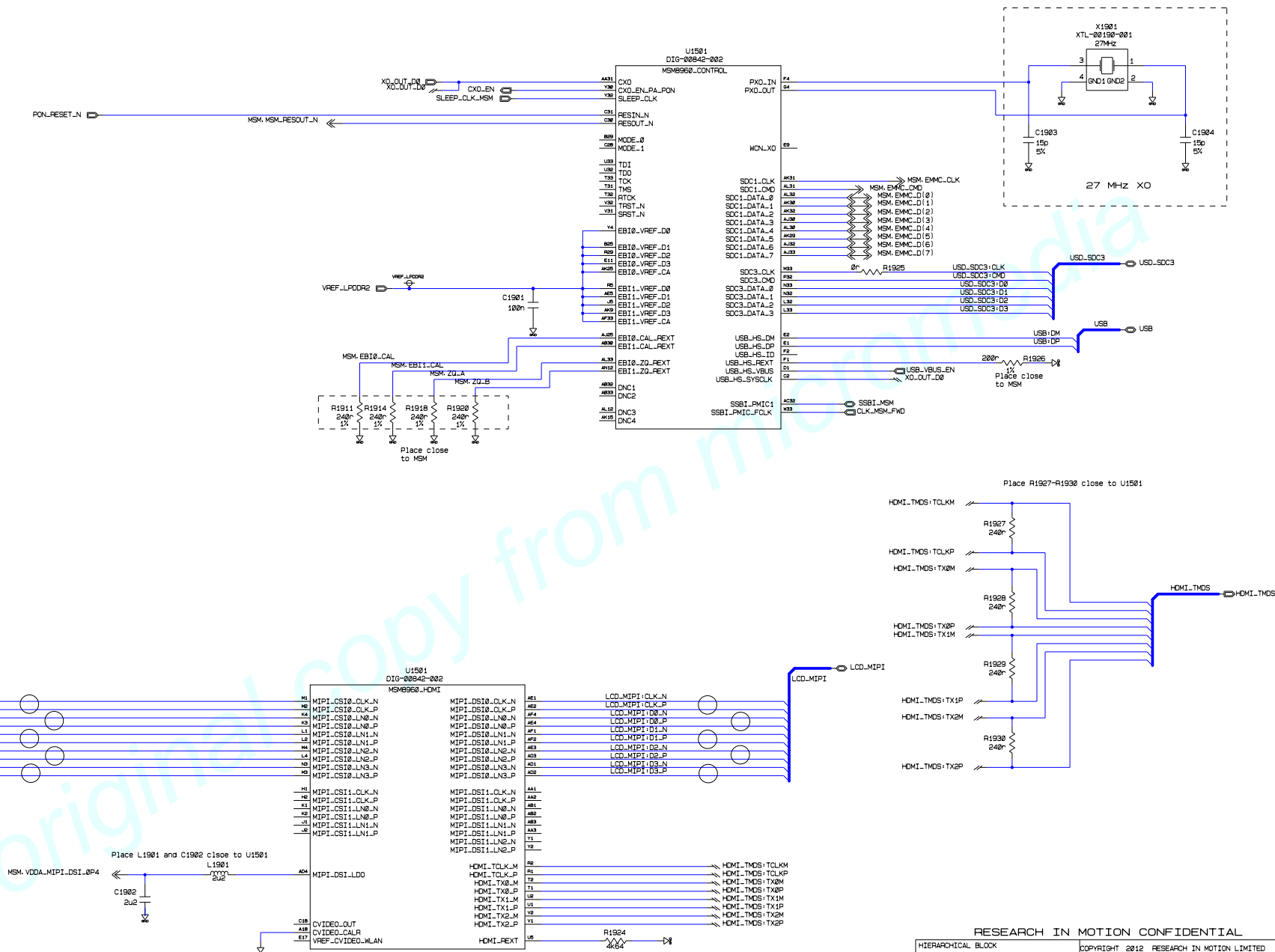


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MFG CHECK Enfich	uses PCB-44899-R010
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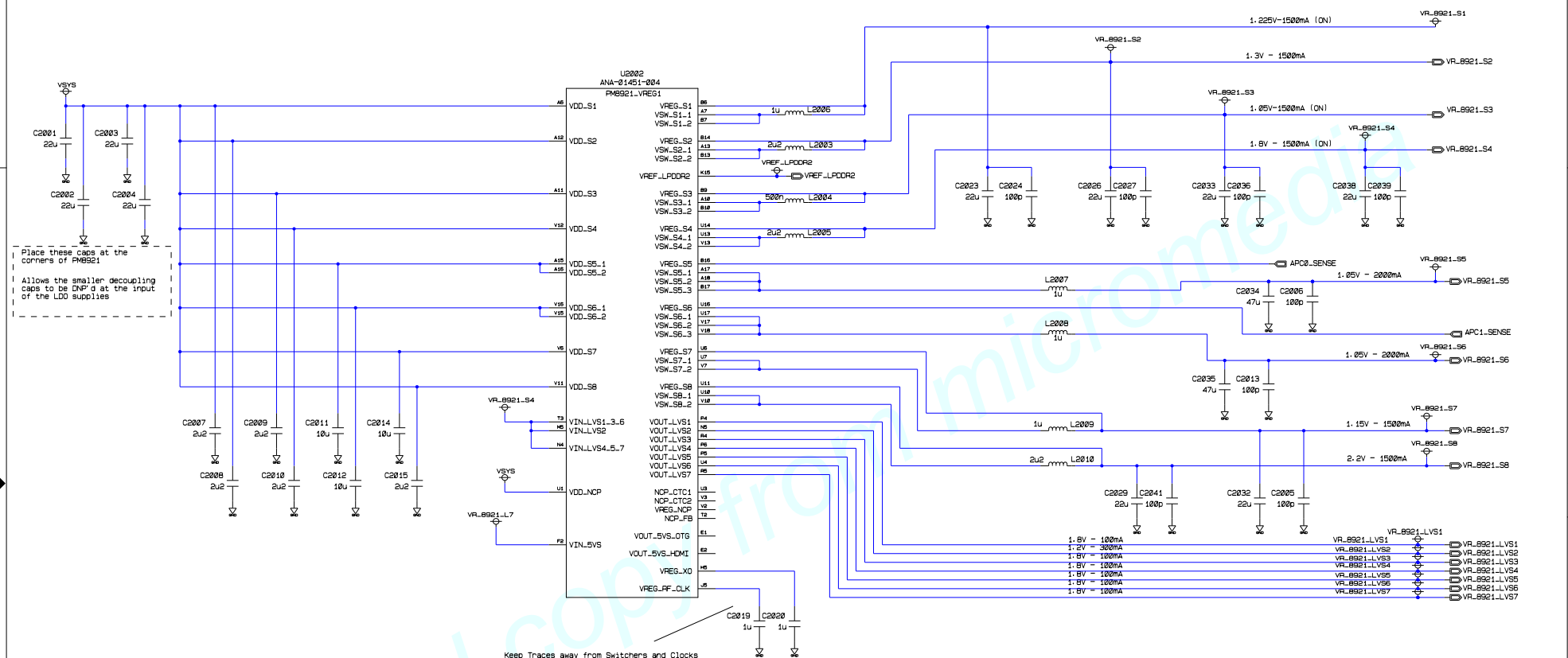
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Layout Notes

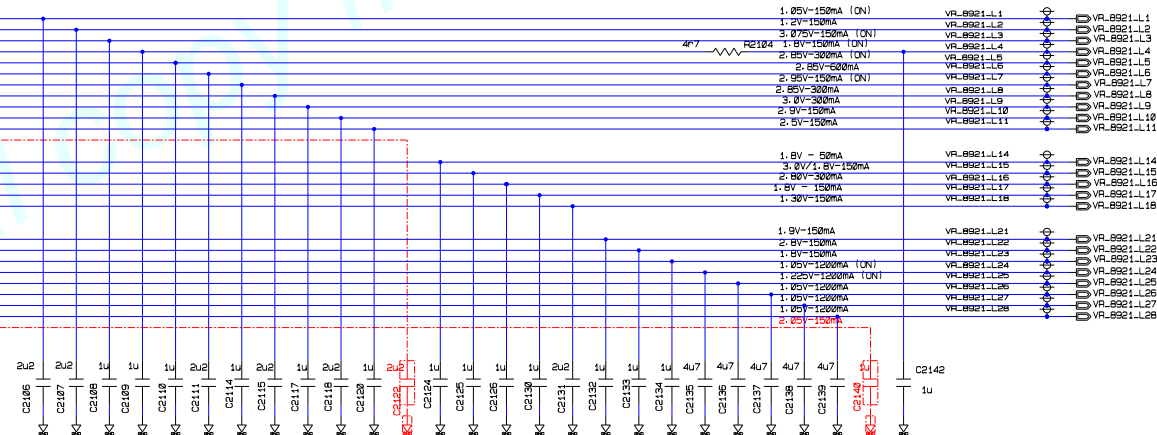
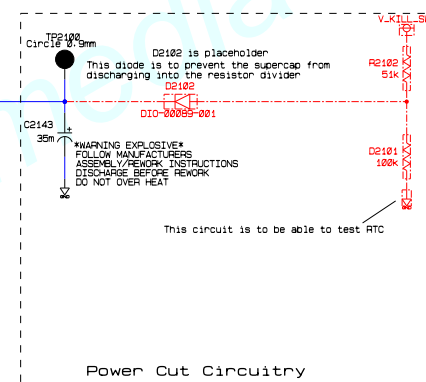
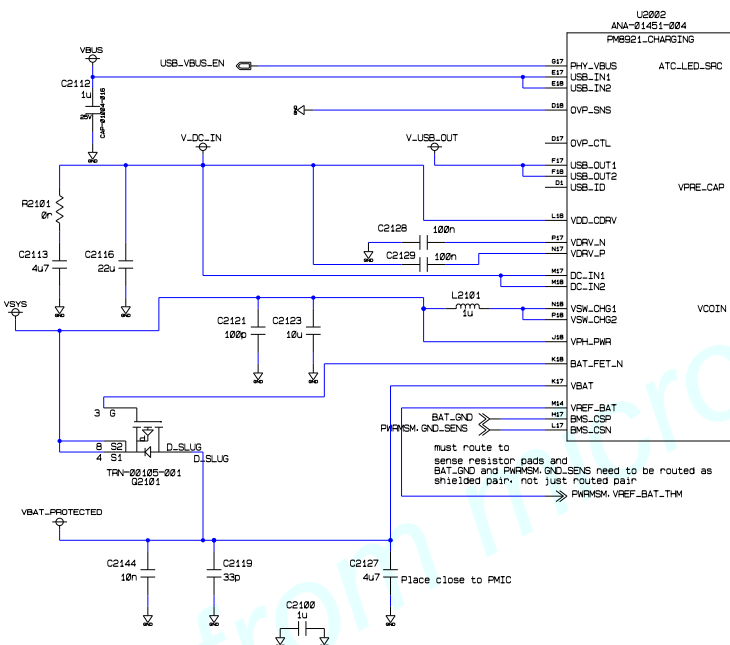
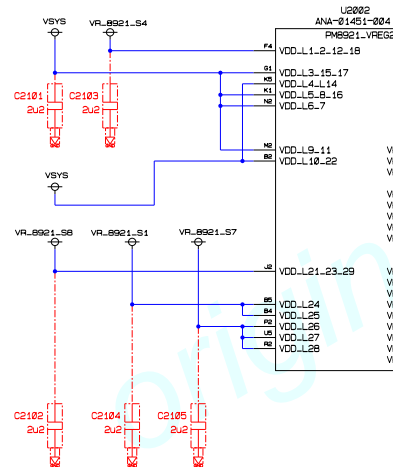
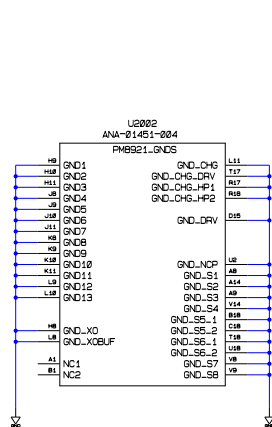
PM9921 Digital switches input cap gnd- output cap gnd and pgnd should all be connected together on top layer

PM9921 RF switches (S2 and S8) output cap should connect directly to ground- input cap ground should be tied to PGND and G111 directly to ground but the output caps and input caps ground should not be connected together

* Current ratings listed are maximums

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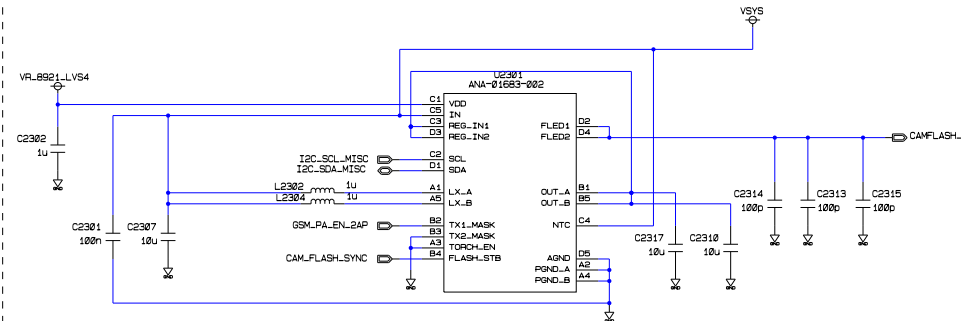
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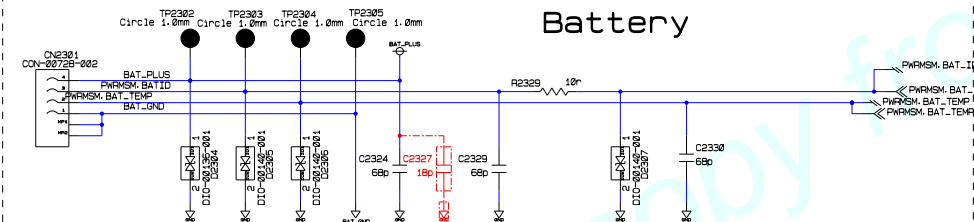
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Camera Flash



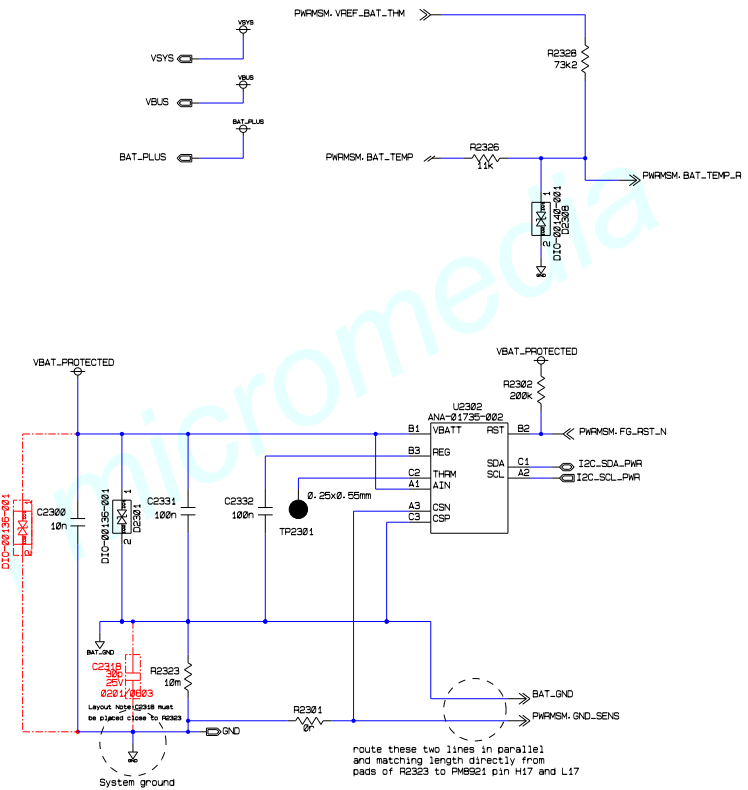
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Battery



B

Current Sensing/Fuel Gauge



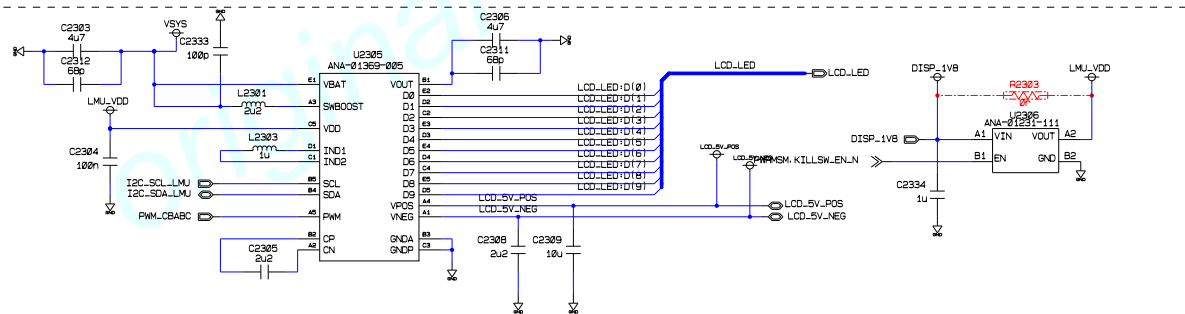
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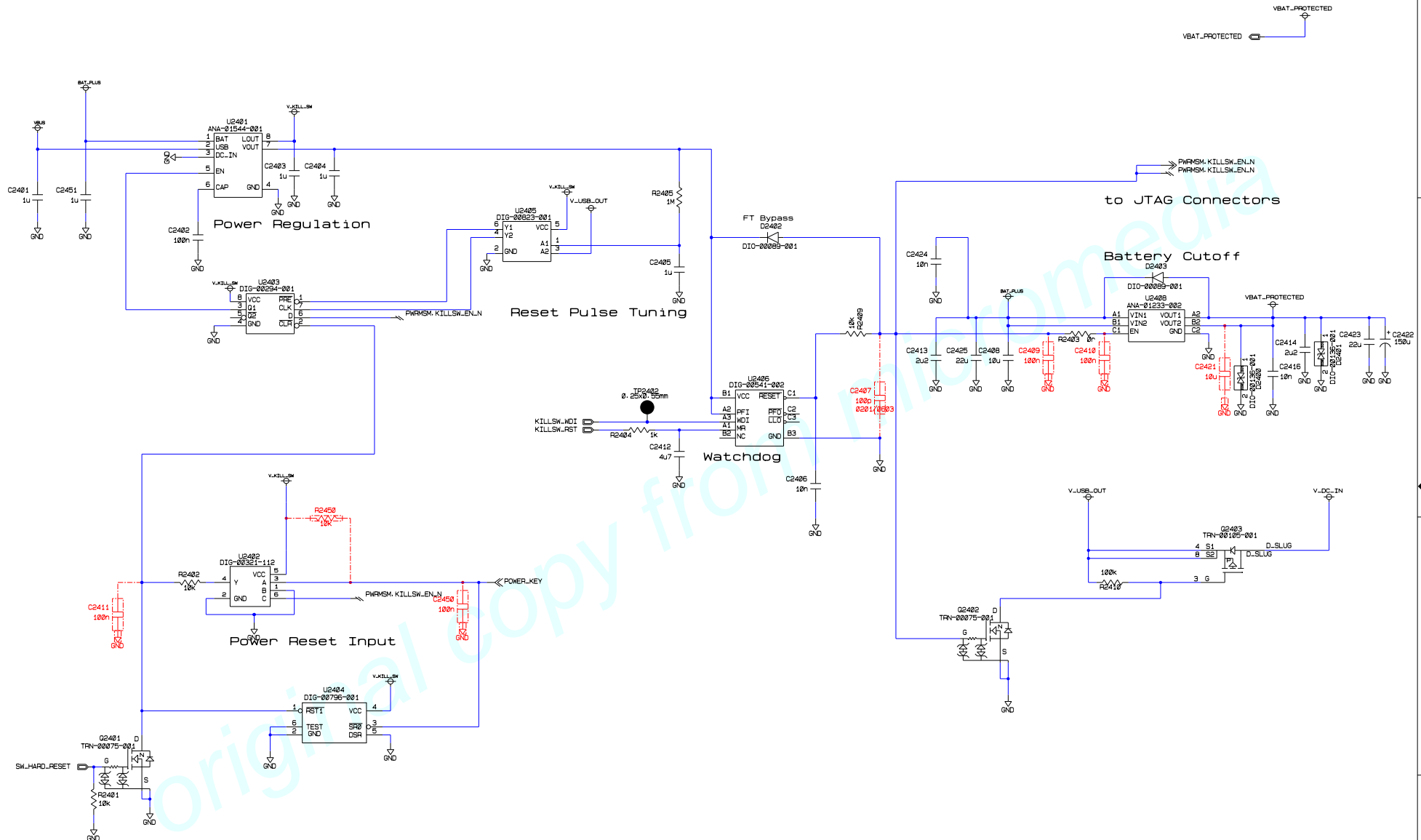
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LCD Backlight and Driver Power



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DRAWN BY Mitu Kapadia	TITLE R070	
R&D CHECK Ottawa CDMA team	uses PCB-44899-010	
MFG CHECK mfgch	SIZE DRAWING No. SCH-44900-010	
EDITED BY autho	REV 2	
LAST EDIT: 2013/01/08 09:02:44	SHEET 23 of 34	

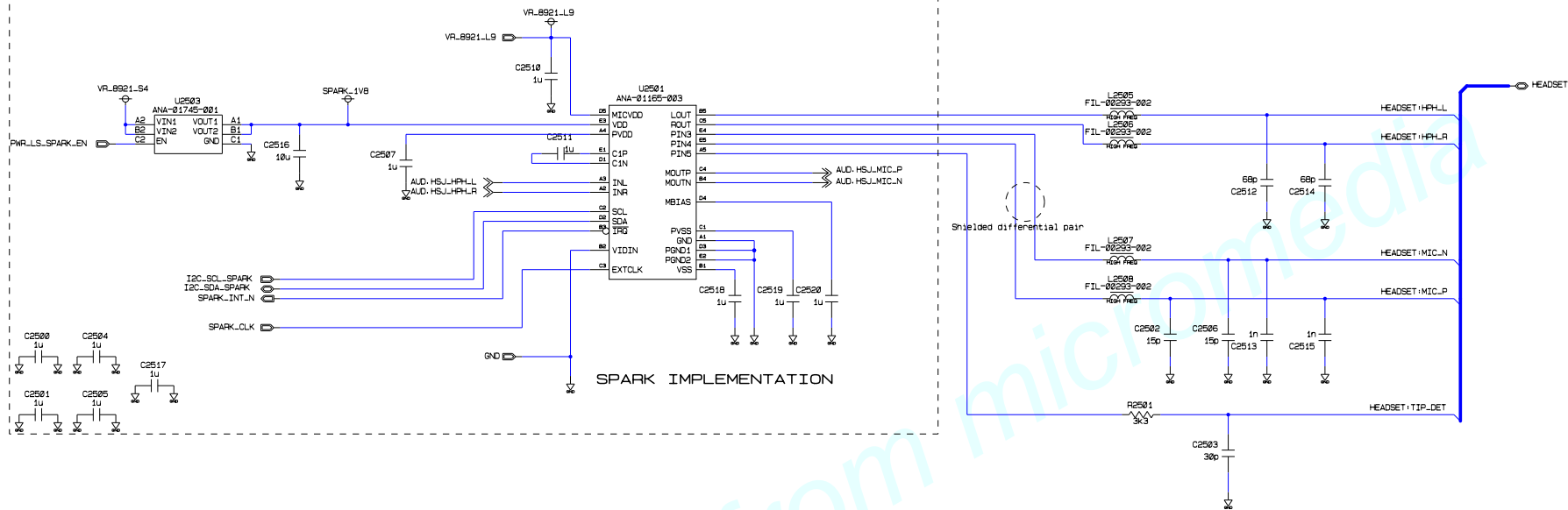
Watchdog circuit



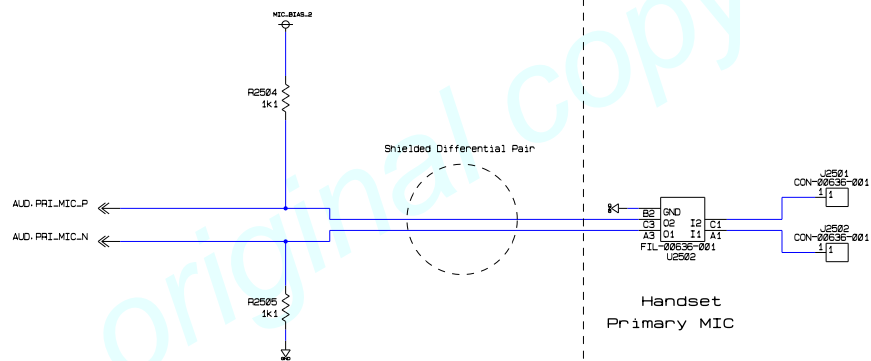
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MFG CHECK mfigch	uses PCB-44899-010
EDITED BY mkapadia	SIZE DRAWING No. SCH-44900-010
LAST EDIT: 2013/01/08 09:02:44	REV 2 SHEET 24 of 34

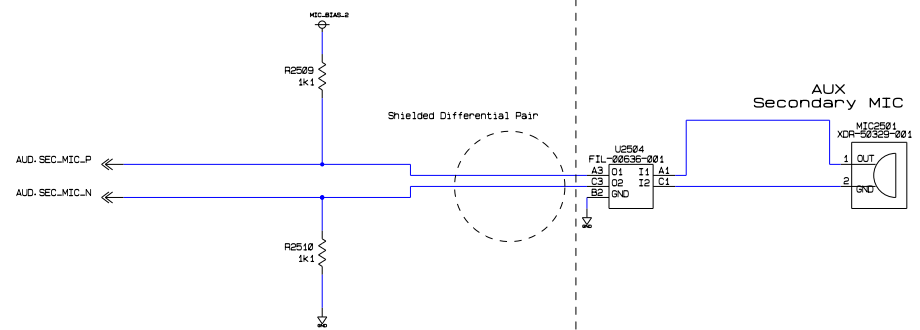
Place in a CAN Very near Headset



Place in AUDIO CAN

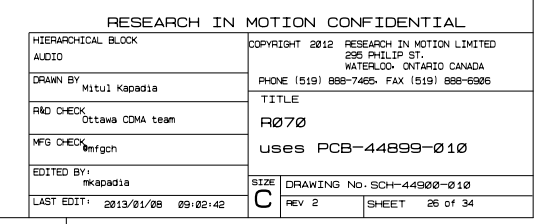
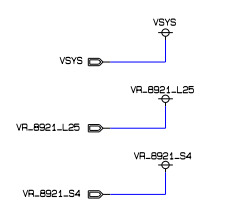
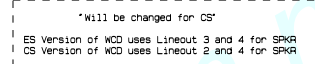


Place in AUDIO CAN



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LAST EDIT 2013/01/08 09:02:42	REV 2 SHEET 25 of 34





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D

C

C

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B

B

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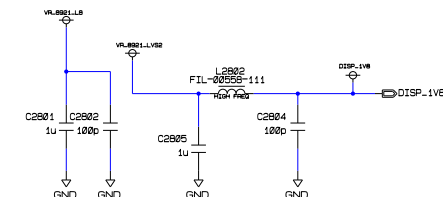
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original copy from micromedia

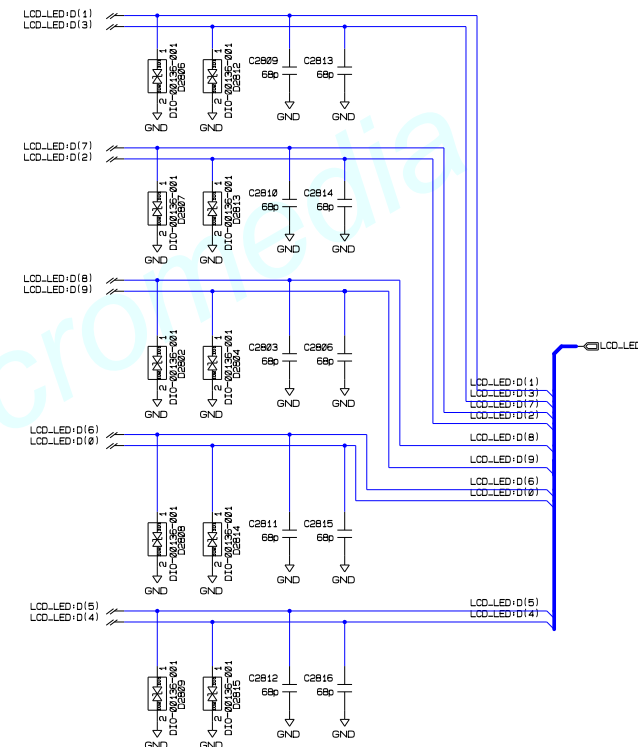
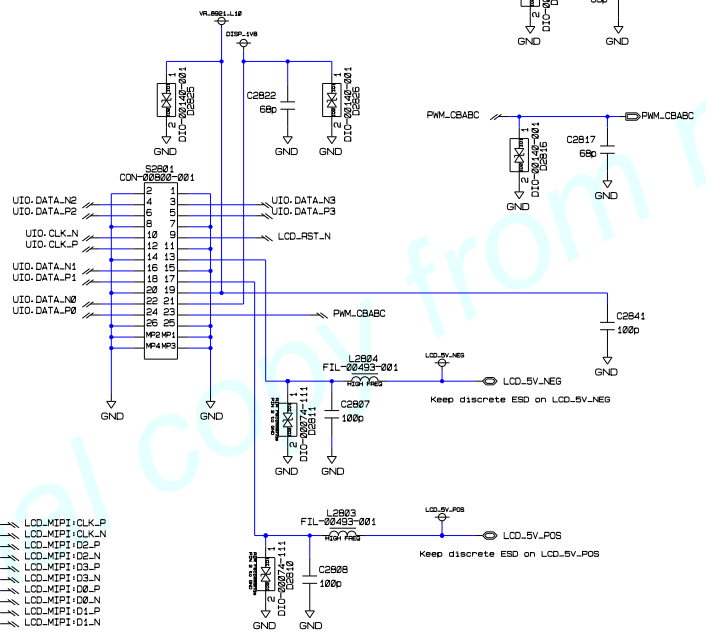
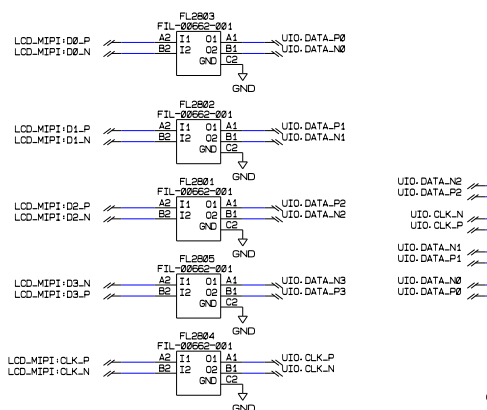
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R&D CHECK Ottawa CDMA team	TITLE R070	
MFG CHECK emfgh	uses PCB-44899-010	
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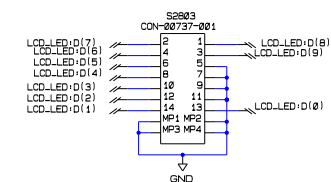




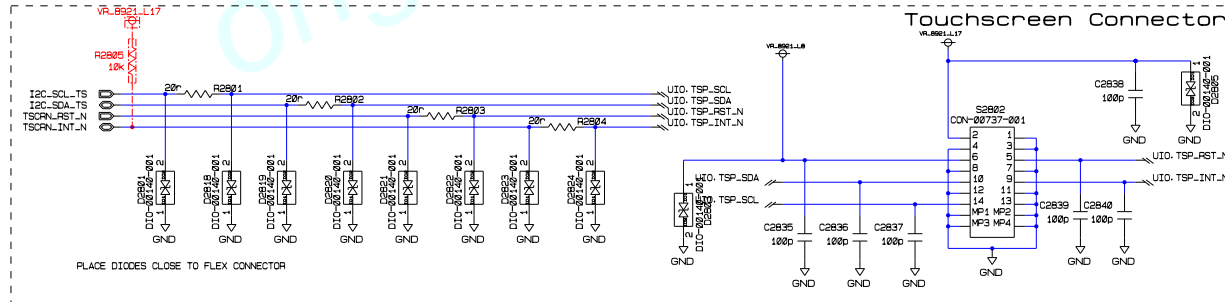
LCD Connector



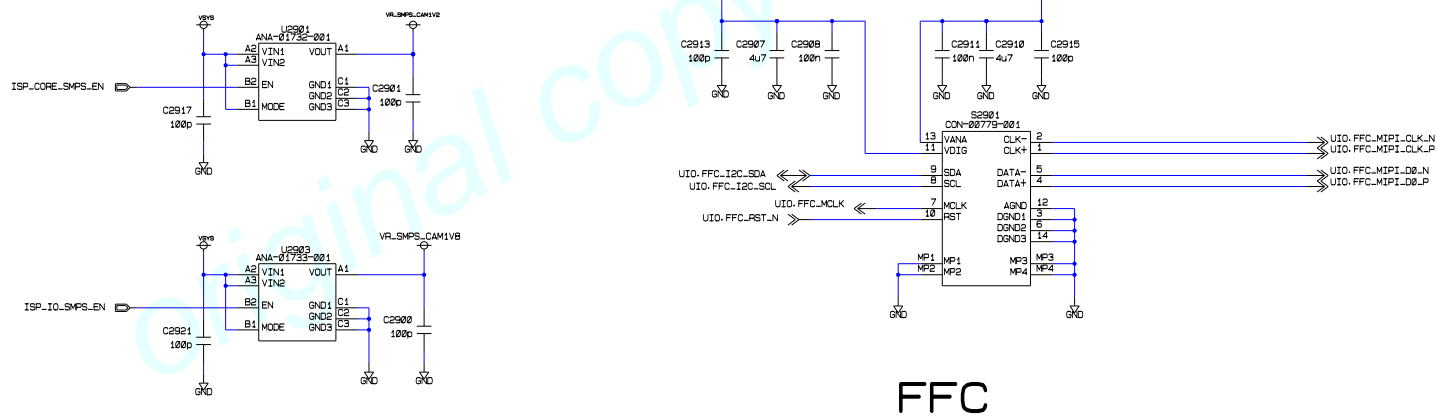
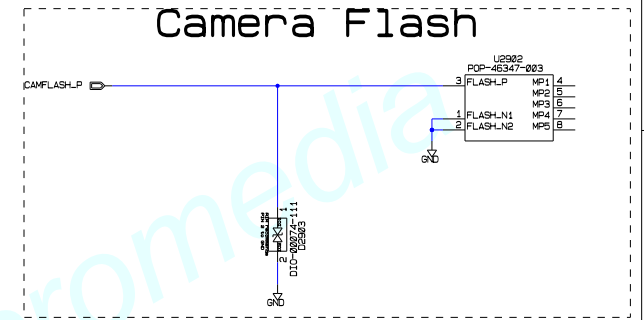
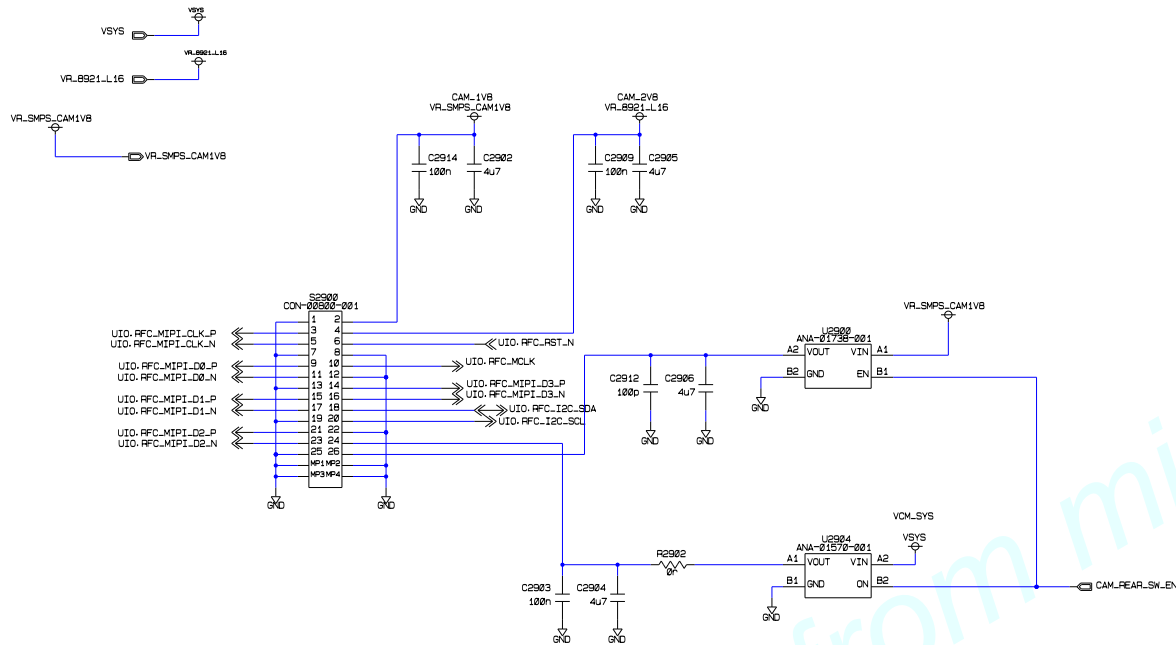
LED Connector



Touchscreen Connector



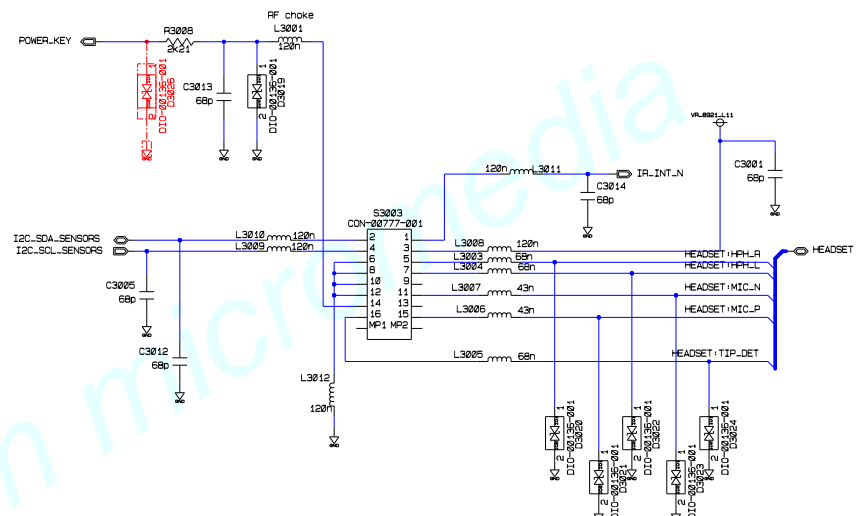
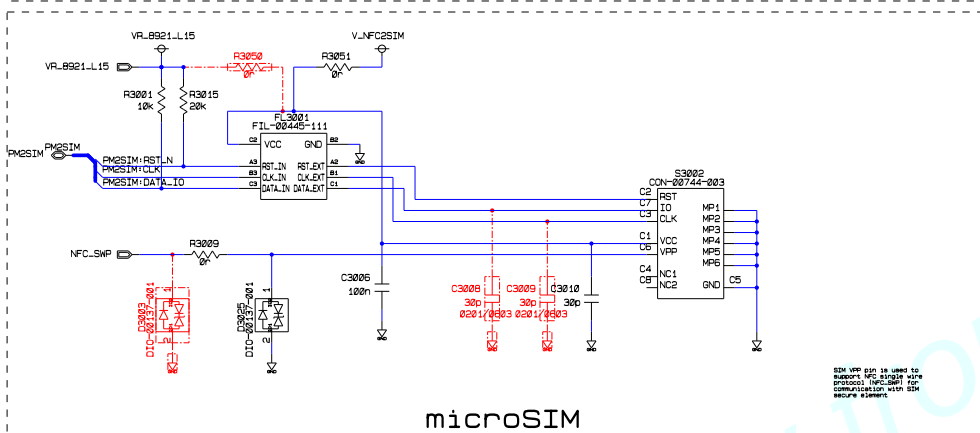
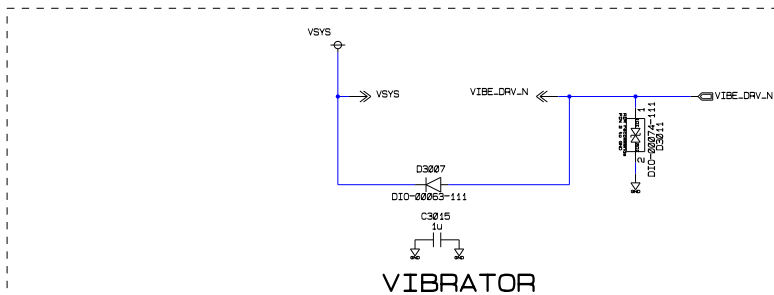
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HIERARCHICAL BLOCK USER_ID	COPYRIGHT 2012 RESEARCH IN MOTION LIMITED 235 PHILIP ST. WATERLOO, ONTARIO CANADA
DRAWN BY: Mitul Kapadia	PHONE (519) 886-7465, FAX (519) 886-6906
RMD CHECK Ottawa CDMA team	TITLE R070
MFG CHECK omgcn	uses PCB-44899-010
EDITED BY: mkapadia	size DRAWING NO. SCH-44900-010
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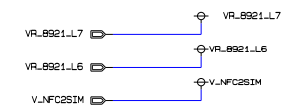
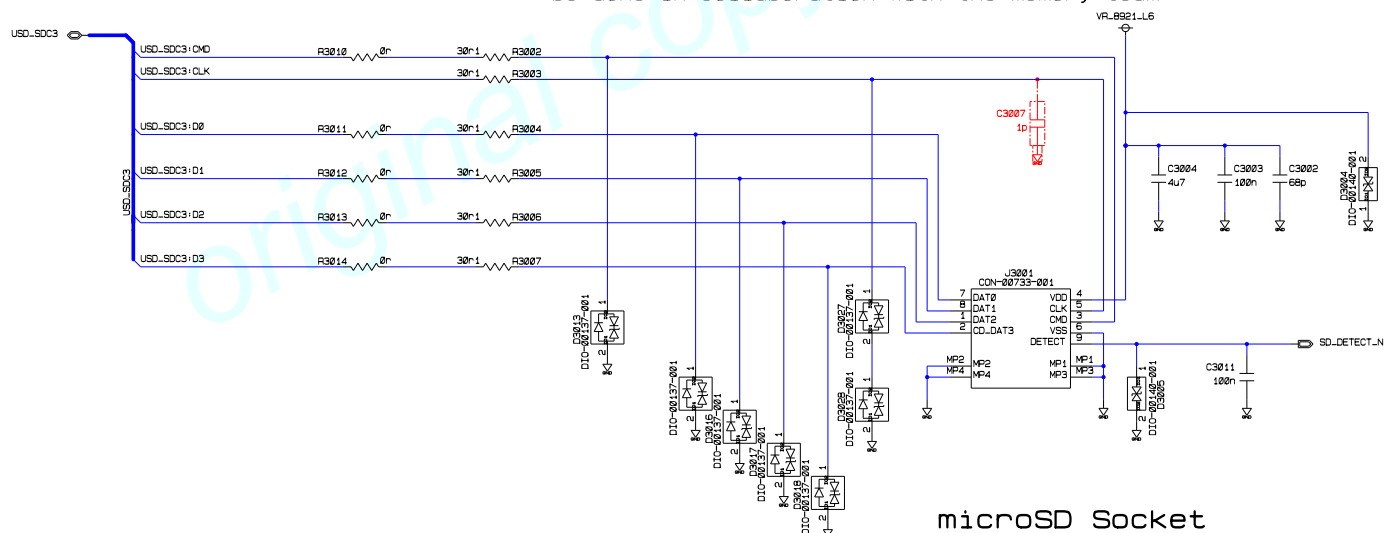
FFC

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DRAWN BY	Mitul Kapadia	295 PHILIP ST.
R&D CHECK	Ottawa CDMA team	WATERLOO, ONTARIO CANADA
MFG CHECK	Infogon	PHONE (519) 888-7465 FAX (519) 888-6906
EDITED BY:	mkapadia	TITLE
LAST EDIT:	2013/01/08 09:02:43	R070
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		SIZE
		DRAWING NO. SCH-44900-010
		REV 2
		SHEET 29 of 34

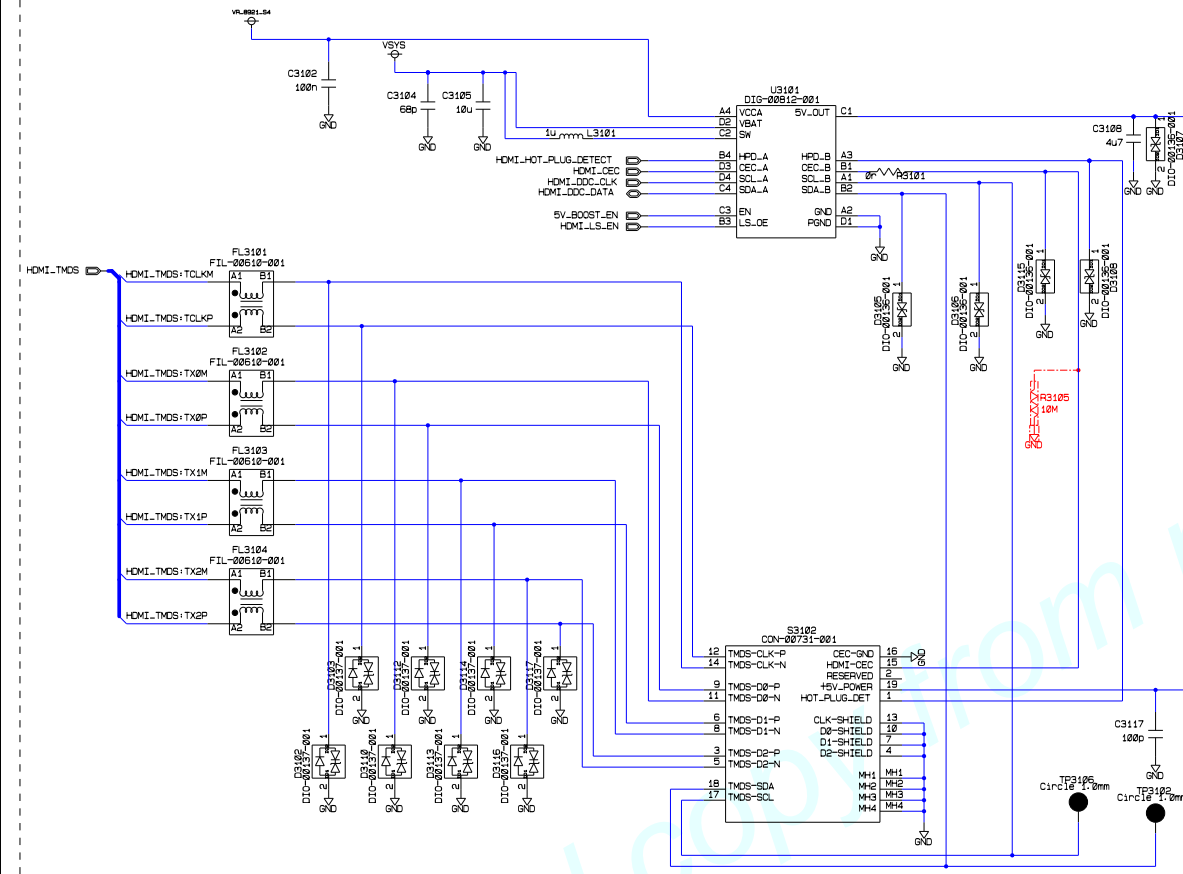


Populating the Capacitor C3007 or changing the 00hm series resistor R1925 on the uSD CLK is to be avoided, and can only be done in collaboration with the memory team

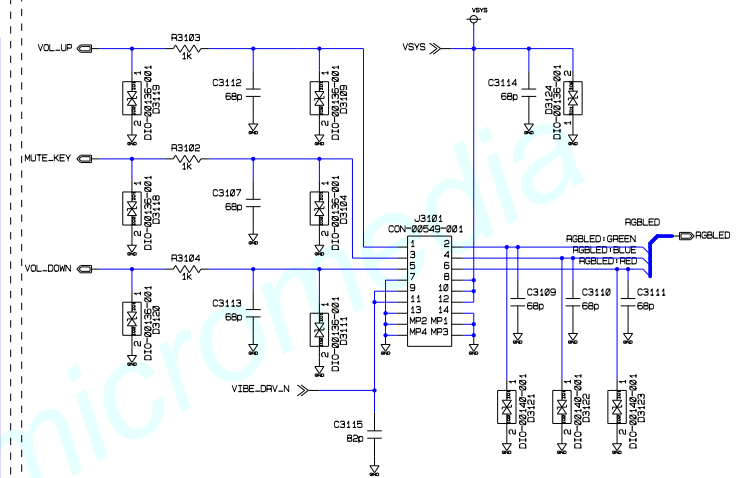


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DRAWN BY Mstul Kapadia	WATERLOO, ONTARIO CANADA
	PHONE (519) 888-7465, FAX (519) 888-6906
RAD CHECK	TITLE
Ottawa CDM team	R070
MFG CHECK	uses PCB-44899-010
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EDITED BY:	SIZE
mkapadia	DRAWING NO. SCH-44900-010
LAST EDITED	REV 2
2013/01/08 09:02:43	Sheet 30 of 34

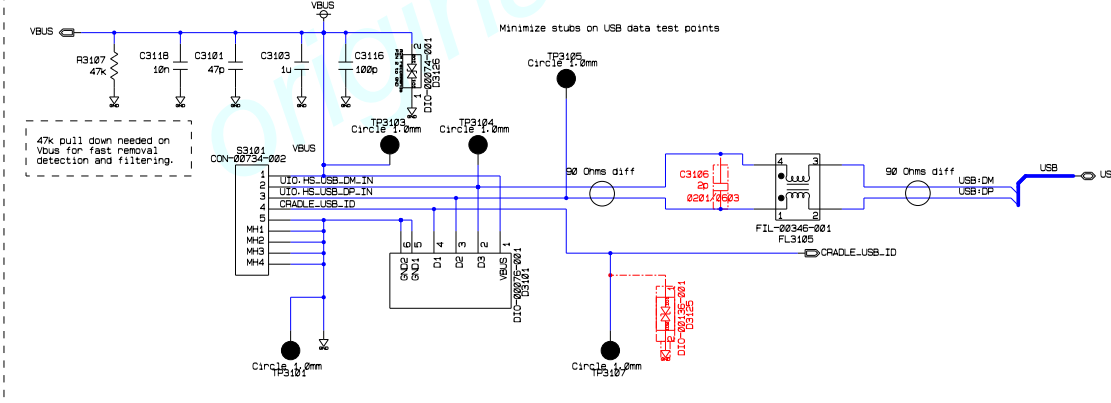
HDMI Connector



Side Key, RGB, AND Vibrator Flex

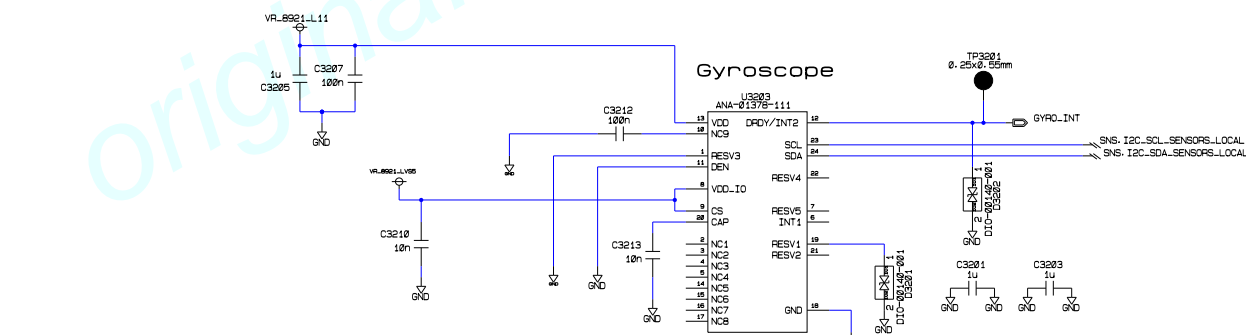
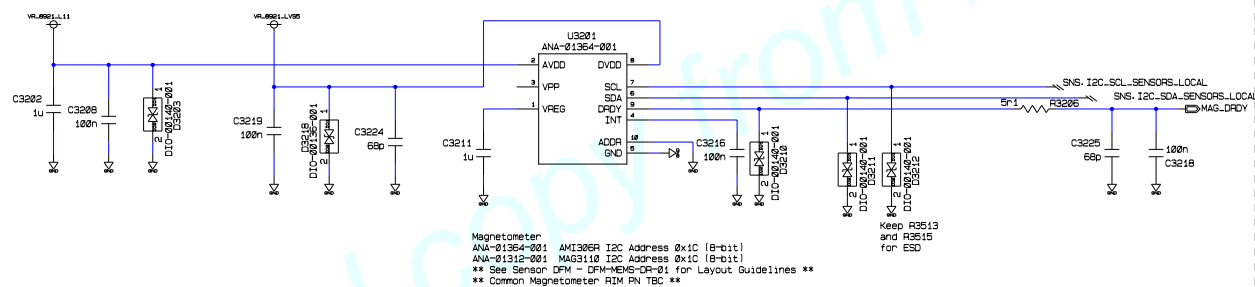


USB Connector



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USER_10	295 PHILIP ST.
DRAWN BY	PHONE (519) 888-7465 FAX (519) 888-6986
Mitul Kapadia	TITLE
RAD CHECK	R070
Ottawa CDMA team	uses PCB-44899-010
WFS CHECK	engn
EDITED BY:	SIZE
mkapadia	DRAWING NO. SCH-44900-010
LAST EDIT: 2013/01/08 09:02:43	REV 2
	SHEET 31 of 34



```
Gyroscope:      Notes:
ANA-01378-001  ST Micro R3GD20 [FCS 2011], I2C address 0xD4 (8-bit)
ANA-01051-001  InvenSense MPU-3050 [FCS 1H 2011], I2C address 0xD2 (8-bit)
ANA-01379-001  InvenSense MPU-6050 [FCS 2H 2011], I2C address 0xD2 (8-bit)

** Common Gyroscope RIM PN TBC **
```

```
** 5ms resonator start-up time increase for MPU-3050 with C3512=10nF **
** Pins 2,3,4,5,14,15,16,17 can be tied to GND and used for
achieving routing symmetry and SMT self-alignment **
** See Sensor DFM - DFM-MEMS-DR-01 for Layout Guidelines **
```

HIERARCHICAL BLOCK SENSORS		COPYRIGHT 2012 RESEARCH IN MOTION LIMITED 625 PHILIP ST. WATERLOO, ONTARIO CANADA	
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AMD CHECK: Ottawa COMA team		TITLE	
MFG CHECK: emgcn		R070	
EDITED BY: mkapadia		uses PCB-44899-010	
LAST EDIT: 2013/01/08 09:02:42		DRAWING NO. SCH-44900-010	
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		REV 2 SHEET 32 of 34	

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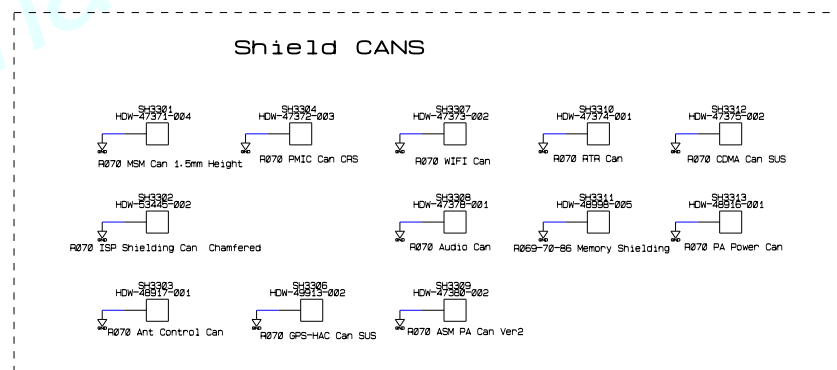
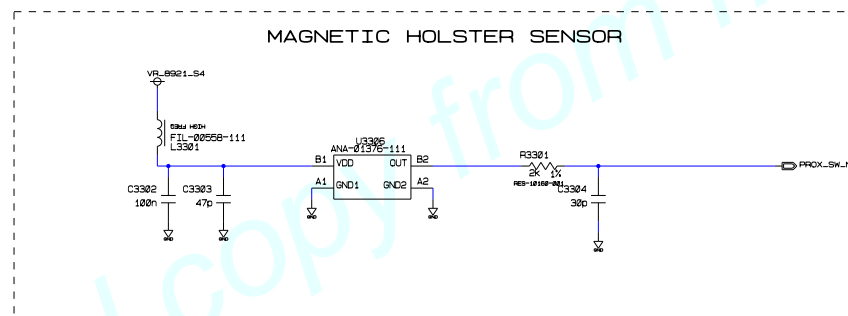
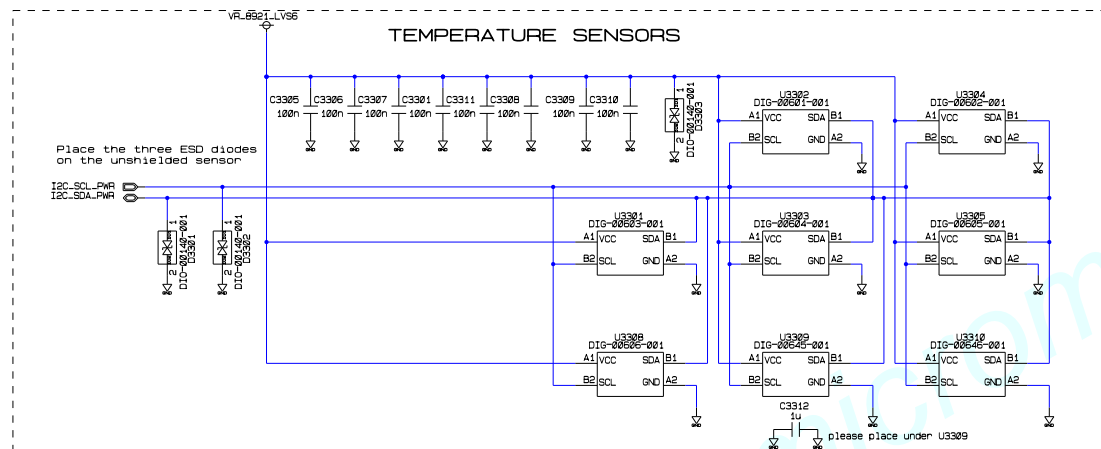
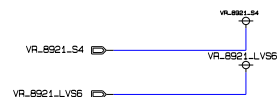
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WFS CHECK Infgen	uses PCB-44899-010
EDITED BY: mkapadia	SIZE C
LAST EDIT: 2013/01/08 09:02:42	DRAWING NO. SCH-44900-010
	REV 2 SHEET 33 of 34

